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Industry and sustainable development

Report of the Secretary-General

Addendum

Industry and economic development*

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I. Role of industry in development strategies

1. Although the economic development of all major economies during the present century is largely the result of industrialization, especially the expansion of manufacturing and trade in manufactured goods, the developmental impact of manufacturing is not limited to the production of material goods: through its human resources, organizational and infrastructure requirements, the manufacturing sector has become the major force behind the creation of modern society.

2. Thus, the development of other sectors of the economy – that is, primary activities, services, education, utilities and physical infrastructure – necessarily complements manufacturing growth, although the manufacturing sector continues to be the major catalyst of technological, economic and social transformation in most countries, even if in terms of direct employment effects the services sector – and in developing countries agriculture – are often more important.

3. The challenge for the future is to maximize the impact of manufacturing on development – which includes raising living standards through more and especially better jobs – while minimizing the impact of production and consumption on the natural environment.

4. The role of manufacturing in development strategies is characterized by spatial, temporal and structural differences. In developed economies, there has been a shift away from labour-intensive mass production to technologically advanced and highly specialized industries since the 1970s. At the same time, organizational and technological developments have stimulated flexibility and the growth of small and medium-scale industries (SMIs). But although traditional branches, such as textiles, have suffered heavily in the process, there has also been a differentiation within branches, with shifts towards high value added in certain product areas. This partly explains why an activity like food processing retains a comparatively strong position in developed economies. Characterizing a country's industrial structure by referring to the relative weight of branches in the manufacturing sector is made even more difficult by the widespread internationalization of manufacturing activities: strictly speaking, many products can no longer be defined as coming from one particular country.

5. Changes in industrial structure are not just the result of market forces: they are often encouraged actively by Governments – through, for example, technology policies, large defence orders and special programmes for small enterprise – even though direct government involvement (in the form of factory ownership) and a dirigiste attitude towards particular industries are now largely a thing of the past. Generally, industrial policy in recent years has become a matter of targeting policy instruments and resources on the removal of market deficiencies hampering private enterprise. In this area, Governments are increasingly becoming facilitators and catalysts.

6. Manufacturing, with a heavy focus on capital goods, was very much the leading sector in the economic strategies of the former centrally planned economies, and the achievement of development targets was entrusted to very large enterprises that were in turn controlled by line ministries. Support services were mainly of a technical nature and an integrated part of the industrial conglomerates; management and marketing skills were not developed. Since the sector was not exposed to competition, product quality and diversity, flexibility and efficient resource use received little attention, especially in the consumer goods sector. All of which has made it very difficult for the sector to cope with economic liberalization. Privatization, restructuring and making the best of a well developed technological and human resource base are crucial elements in the recovery strategy of these countries.

7. In the absence of a strong modern domestic entrepreneurial class, and sometimes inspired by the industrialization drive of the centrally planned economies, developing countries have in the past often relied on large government-owned manufacturing enterprises to spearhead industrial development. The dominant strategy of most developing countries has long been based on inward-looking import substitution for a protected market, which has proved ineffective in creating dynamic economies and has not resulted in major reductions in poverty and unemployment levels. Such problems have been particularly pronounced in sub-Saharan Africa, where very little of the environment that would have made the emergence of a modern manufacturing sector possible was in place when the countries of the region became independent; in most cases, post-independence development strategies have been incapable of significantly improving the situation.

8. But developing countries have been rethinking the role of manufacturing in their development strategy. From the 1970s onwards, developing countries (mostly Asian, with a number in Latin America and some in Africa) have successfully used their low wage levels and abundant labour supply to attract labour-intensive foreign industries relocating from high-wage countries and re-exporting to global markets. Starting with traditional industries, such as

textiles, these soon included electronics and car assembly. Complemented by a proactive government attitude towards human resource and technology development, the latter have served as a basis for a progressive increase in technological sophistication and competitiveness in export markets of the manufacturing industries of a number of Asian and Latin American countries. In addition, SMIs have received a strong boost, especially in Asian countries, with the active support of government, helping to spread employment and business opportunities widely; working conditions and environmental management, however, have often been neglected and are major challenges for the sector.

9. With some exceptions, the countries of sub-Saharan Africa have lagged behind in this trend. A major problem for these countries is that as manufacturers, they are latecomers and find themselves in a global economy in which low-cost labour and natural resources are also offered by countries with a stronger industrial tradition. Moreover, these production factors no longer play the key role that they had in the past due to the development of new technologies and materials, the decline of raw-material-intensive manufacturing, and the growing importance of skill and technology-intensive production. Increasingly, it may be said that a country's advantages are in its human capital. Designing the strategies that will allow manufacturing to make a full contribution to the development of the region is one of the major challenges facing Governments and the business community in sub-Saharan Africa. The recent upturn in a number of sub-Saharan economies is a positive sign indicating that these countries now have an opportunity to do so.

10. Among developing countries, China is in many ways a conspicuous exception, constituting a special case: a centrally planned developing economy with a vast internal market which started an economic liberalization process well ahead of the other large transitional economies, attracting foreign investment and encouraging the development of local entrepreneurial potential through a large and rapidly expanding SMI sector.

11. Developing countries that have found the right response to trends in global manufacturing have seen their share in global manufacturing value added (MVA) rise. By 1995, the overall share of the developing countries in global MVA had reached 20 per cent, but progress has been very uneven, the main gains having been made in a number of Asian countries. In the economies in transition, a recovery is taking place, but even in the more advanced transitional economies of Central Europe, the transformation of manufacturing into an internationally competitive sector still has a long way to go and it will be some time before a process of sustained manufacturing growth sets in.

12. Data from the United Nations Industrial Development Organization (UNIDO) *Industrial Development Global Report 1997* reveal interesting trends by country group in overall and industrial development during 1970-1995. One is the trend towards recovery in the transitional economies. Another is the high growth rates (absolute and relative to gross domestic product (GDP)) of the manufacturing sectors of the East and South-East Asian countries (excluding Japan). During 1994-1996, China showed double-digit growth in MVA, while the other countries in the region had MVA growth rates consistently exceeding 7 per cent.

13. The Asian region as a whole shows growth rates of GDP and MVA well exceeding those of other country groups. A considerable part of manufacturing growth, moreover, is in industries with a high technology content: over 20 per cent of manufacturing in China and the other East and South-East Asian countries fall into this category, according to UNIDO figures. Although levels of sophistication differ in many industries, these figures are quite comparable to those for the industrialized and transitional economies. In most years and most country groups, MVA growth figures are higher than those for GDP, indicating that manufacturing continues to be the major dynamic factor in economic development.

14. In sub-Saharan Africa, recent years have seen an economic recovery in a number of countries, with Malawi, Equatorial Guinea, Uganda and Lesotho leading the way with double-digit growth rates in 1995. This could mean a new start for the industrial sector in a number of sub-Saharan countries, provided that the recovery is sustained and that efforts to create the conditions for the emergence of a competitive manufacturing sector are stepped up. Some relocation of industries from Mauritius and South Africa to other countries in the region with lower labour costs has taken place.

II. Policy challenges for Governments

15. Effective policy-making requires a dialogue between the Government, the business community and other major players in society. Increasingly, in developed market economies as well as transitional and developing economies, this dialogue not only takes place at the national but also at the (subnational) regional and local levels. Assuming adequate local or regional potential, freedom of action for local or regional actors and a coherent national strategy, such

bottom-up initiatives can greatly contribute to a country's economic performance. Accommodating different concepts of and approaches to development by different actors, however, can be a major challenge.

16. This is also true for the (supranational) regional economic entities that have emerged in recent decades, some of which, such as the European Union (EU), are acquiring decision-making powers that used to be the preserve of national Governments. In addition, there is a growing number of binding multilateral agreements on trade, among other things.

17. Against the background of a much more diffuse policy-making process, the highly competitive global economy and the need to reconcile economic, social and environmental objectives forces national Governments to concentrate efforts on three interlinked policy issues that will have a major impact on manufacturing: sustainable growth, a favourable climate for domestic enterprise and foreign investors, and increasing skill levels in societies through human resource development and technology policy.

18. Sustainable development can be defined as a form of development that maintains (or increases) human well-being, while ensuring intra-generational equity and the preservation of the Earth's total capital stock of natural, human and manmade capital. Since the manufacturing sector is the major transformer of natural capital through human and manmade capital, sustainable manufacturing must be at the heart of any sustainable development strategy.

19. A sustainable industrial development strategy must accomplish three things. First, it must encourage a competitive economy, with industry producing for export as well as for the domestic market, such as through technology and investment policies. Second, it must create productive employment, particularly long-term employment for sustained increases in prosperity, such as providing training and education and lowering barriers to enterprise creation. Third, it must protect the natural environment through the efficient use of renewable and non-renewable resources, keeping resource use within the functional limits of the ecosystem, such as by providing incentives for resource conservation and national emission standards, in harmony with international standards, where relevant. Policy reforms for sustainable growth must cover all these elements in a balanced way. The formulation and implementation of the various measures will require capacity-building at the relevant government levels. Such capacity-building will also be required for the non-governmental partners in the policy-making process.

20. A policy environment that stimulates domestic private enterprise should:

(a) Shift away from intervention, protectionism and regulation towards strategies that aim to boost economy-wide competitiveness through improvements in infrastructure and education, stimulation of research and development, links with industry etc.;

(b) Facilitate the exploration of export markets and liberalize domestic markets;

(c) Make the most of a country's entrepreneurial potential, while promoting job creation and equity by facilitating local initiative and the establishment of SMIs.

21. In many developing countries and countries in transition, a major obstacle, especially for the development of the small-scale sector, is the lack of adequate financing and industrial support services. Experience with direct public-sector support in these areas has been mixed. With regard to finance, policies and regulations should aim at the creation of a sound private banking system and encourage the development of capital markets. For the small-scale sector, Government-supported credit schemes can be effective if accompanied by good performance monitoring. In addition to such schemes, efforts must be made to mobilize savings in the sector more effectively, and legislation that directly or indirectly discriminates against SMIs must be abolished. Where industrial support services cannot yet be provided by the private sector, central, regional and local governments should make a point of involving the business community for which these services are intended in the establishment and running of such services.

22. A distinctive feature of the globalization process is the strong increase in international capital flows, in particular, foreign direct investment (FDI). For developing countries and economies in transition, FDI is often the major source of new technologies, organization and management methods. Although FDI cannot be expected to take the place of domestic investment, complementarities between domestic and foreign investment can be strong. The establishment of successful joint ventures requires the presence of active and competent local partners. Subcontracting of parts and components for large foreign firms can be an important growth factor for the small and medium-scale sector. Most importantly, FDI will only have a significant multiplier effect on the domestic economy if the business environment created by the Government also fully supports the development of domestic enterprise and investment.

23. In promoting foreign investment, coordination of FDI policies with domestic investment promotion is essential. In general, fiscal incentives given to foreign investors should also be available to domestic business. A country's policy environment must also be stable to ensure confidence among both domestic entrepreneurs and foreign investors in the economy. At the same time, policy makers must be capable of responding effectively to changes in the economic environment, which among other things requires a constant dialogue with the business community. The long-term success of economic policies reforms is ensured by evenhanded treatment of different types of enterprise, a Government's commitment to its policies and its ability to keep abreast of change.

24. Empirical evidence shows a much stronger relationship between investment and industrial growth if the concept of investment is widened to include investment in human and technological capital. This is very clear when looking at high-growth Asian developing countries. The two forms of capital are linked: without a well-developed skill and knowledge base, there is no basis for a domestic technology strategy and imported technologies cannot be absorbed. Technological progress will lead in a shift of job opportunities to the higher skill categories and to support services, and policy makers should be aware of the social implications of these shifts. With regard to environmental sustainability, very cost-effective, environmentally friendly technologies have become available in many industries. The promotion of such technologies is one area in which economic, technology and environmental policy interface.

25. Recent developments in the international arena, such as rapid technological advances, new modalities of technology transfer, foreign investment and strategic partnerships, liberalization and changing approaches to intellectual property, are producing a dramatic change in the international technology market. Developing countries, in particular, often lack information on the opportunities and alternatives in this field, as well as the ability to handle the relevant issues effectively. Successful technology transfer is also inhibited by inadequate skills and industrial infrastructure. The possibility and pace of technology transfer through FDI depends to a large extent on the technical competence and learning ability of the receiving countries, which places a heavy responsibility on those who formulate technology and educational policies, and on the willingness of foreign investors to encourage higher levels of local recruitment into key technical and management positions. The availability of a large pool of highly skilled labour puts the transitional economies and some of the developing economies in a good position, provided that they create the right investment climate.

26. A comparatively new way by which the more advanced developing countries gain access to key technologies and other strategic assets is through direct investments in industrialized countries. A number of firms from the Republic of Korea and Taiwan Province of China have acquired equity stakes in innovative start-ups and spin-offs from existing firms in industrialized countries. Success in this area is partly due to the proactive role of government with regard to technological modernization and intensive collaboration with the industrial sector.

27. Least developed countries looking for technology inflows may often find it easier to attract FDI originating in developing countries than in industrialized countries. Technology transfer can take place between developing countries in order to exploit opportunities for regional cooperation, which enables them to optimize their gains from the new technologies. Such cooperation may begin with an exchange of information and later develop into commercial relationships.

28. Domestic capabilities should also be strengthened through greater cooperation between industry and domestic research and development. In this respect, there is a considerable potential in the transitional economies and a number of the larger developing economies, although the conversion of military technologies for the civil market is a major problem in some of the former. Industry and research and development can be linked in various ways, and a step-by-step approach via incubator centres, upgrading industrial estates etc. should be contemplated before costly investments are made in full-fledged science parks, although the latter will help to attract foreign high-technology firms if the overall investment climate for such firms is right. At the local or regional level, proactive government can do much to stimulate productive links between the business and academic communities.

29. In view of the increasing significance of the knowledge embodied in technologies, management methods, marketing skills, problem-solving abilities of employees etc. as a production factor, the educational system and the social infrastructure of a country more and more determine its overall competitiveness. One of the Government's main responsibilities is the provision of general basic education and sufficient opportunities for secondary and tertiary education. Good access to education is particularly important for women since their opportunities to participate have usually been inadequate. In a heavily competitive global economy, it is essential that – without exclusively focusing

on the present needs of the economy, which would limit longer-term creativity and adaptability and hence sustainable development – the knowledge and skills provided by the educational system correspond adequately to the needs of enterprises. In developing countries, the educational system usually does not produce enough graduates with relevant technical and non-technical (managerial, marketing etc.) skills; the transitional economies suffer from a lack of non-technical skills that are relevant to a market economy.

30. Consultations between the Government and the private sector can help to adapt education and training to labour market signals and to shift part of the educational burden away from the government budget. Educational legislation should allow the establishment of private-sector schools teaching business skills. Partnerships between the public and private sectors, which are becoming common in many developing countries, ensure that essential skills and theory acquired through formal education are complemented by enterprise-based practical training. The system, however, only works well with strong supervision of training institutions and if enterprises are committed to adequate investments in staff training, including programmes that keep staff abreast of changes in technology, marketing strategies etc. Again, it is important to provide equal opportunities to female staff for participation in these programmes. Tax incentives can stimulate enterprise investments in training.

III. Policy challenges for the international community

31. The Uruguay Round agreements and the establishment of the World Trade Organization (WTO) will have far-reaching repercussions on industrialization in developing countries. In joining WTO, developing countries commit themselves to the entire Uruguay Round package of trade reforms. In terms of export market prospects, the main gains to developing countries will be improved access to developed country markets and an insurance policy against future barriers to those markets. But although such gains provide opportunities to developing countries, most African and some Caribbean countries will suffer losses due to the disappearance of preferential trade arrangements. And although the overall developing country export gains are likely to be considerable – quota elimination is estimated to result in an additional $80 billion of textile and clothing exports by 2005 – much of this growth is expected to go to China and India, the implication for many other countries being a restructuring of their export activities. Tariff reductions will favour the development of downstream processing. In the short term, the most significant developing country industries to benefit will be leather and footwear, travel goods, rubber, wood and paper products, and yarns or jute.

32. The trade-related investment measures agreement under the Uruguay Round mean that local content regulations and trade-balancing tests will have to be abolished in a few years, although such measures will be temporarily allowed for infant-industry protection and balance-of-payment reasons. This has important industrial policy implications for developing countries and economies in transition. Explicit export subsidies will have to be replaced by indirect support to export oriented industries, such as through training programmes, support for research and development, and international marketing assistance. Overall improvements to the business environment, such as outward-looking trade policies, investment policies that stimulate technological capacity-building and infrastructure building, will help exporters in general. Again, working with the domestic business community is essential for designing policies that will be effective.

33. Integration agreements among developing countries, such as free trade areas or customs unions, can contribute significantly to export growth, but new approaches will be needed to avoid the disappointments of earlier agreements. For a number of European transitional economies, the recent and forthcoming agreements with individual European countries and the European Union present great opportunities, but creating a business climate that will encourage domestic producers to meet foreign competition remains a challenge for policy makers.

34. In an increasingly interdependent international economy, the globalization of communications and consumption must be complemented by effective globalization of production patterns, employment opportunities and rising incomes, without which peace and social stability will be jeopardized. These objectives cannot be left to market forces and the private sector alone, and more than ever require international cooperation through specialized institutions and networks.

35. In order to strengthen the ability of the manufacturing sectors of developing countries and economies in transition to face competition in global markets, multilateral and bilateral assistance has a role to:

(a) Support the design of strategies and policies for international competitiveness;

(b) Build up domestic capacities;

(c) Stimulate the development of individual industrial activities.

In addition, a globalizing economy will require that the multilateral organizations strengthen their role as a world forum for the debate on development issues, and for the encouragement of cooperation between the different regions and country groups.

36. In order to overcome the impediments to industrial development in Africa and in the context of the United Nations System-wide Special Initiative for Africa, UNIDO has set up the Alliance for Africa's Industrialization. Although targeted at Africa, the Alliance is also relevant to least developed countries outside the African region. In cooperation with African industry, Governments and institutions, this initiative will address three specific issues:

(a) Capacity-building for human resource development, institution-building for the private and public sectors, increasing government efficiency and socio-economic progress;

(b) The promotion of competitiveness through private-sector development, strategic alliances and investment, and innovation and upgrading of industries enjoying potential comparative advantages;

(c) The promotion of natural resource based industries in areas where individual countries have a comparative advantage.

37. The liberalization of world trade will result in a boost for world manufacturing, and raises fresh concerns about the linkages between economic growth and environmental sustainability. The rapid rise of manufacturing in a number of developing countries will require the progressive improvement of environmental policies and the transfer or development of environmentally sound technologies, which constitutes a major challenge for the international community. Dealing with the industrial pollution inherited from the era of central planning in the economies in transition is a similarly daunting international challenge.